

a test agent, and (ii) ascertaining the presence, and more preferably the level, of onset or degree of severity of an inflammatory bowel disease or disorder, and comparing that with an untreated transgenic animal or transgenic animal treated with a control agent.

## X. Exemplification

The following Table 1 teaches genes whose up
regulation or down-regulation, as indicated by "î" and "↓",

respectively, has been found to be associated with UC and

CD. The genes are grouped according to their general

functionality, as follows,

I Chemokines + cytokines and growth factors

15 II Inflammatory mediators

III Cell cycle regulators/ transcription factors

IV Cancer Related

V HLA or immune function genes

VI , Antimicrobial

20 VII ECM and remodelling

VIII Others: Carbohydrate metabolism, Fatty acid

metabolism, Protein

folding/modification/degradation

25 Table 1

	υC	CD	Acc No.	Gene Names	1	Microsatellite Markers
I	121.4	12.8	Y00787	MDNCF/IL-8	4q13-q21	D4S392-D4S2947
I	115.3		X54489	MGSA (GRO1)	4q21	D4S400-D4S1534
I	17.9		M57731	MIP-2 (GRO2)	4q21	D4S392-D4S2947
I	18.9	↑4.1	M28130	IL8	4q13-q21	D4S392-D4S2947
I	↑6.8	↑3.9	X57351	IP-10	11	pTEL-D11S1318
I	<b>1</b> 6		J04130	MIP-1 /SCYA4	17q21	D17S933-D17S800
I	↑3.4		X53800	MIP-2 (GRO3)	4q21	D4S400-D4S1534
I	↑3.2		M69203	MIP-1 /SCYA2	17q21	D17S933-D17S800

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		QC .	CD .	Acc No.	Gene Names		Microsatellite Markers
	I	14.6		X04500	pro-IL-1	2q14	D2S293-D2S121
	I	13.5		X53296	IL-1RA	2q14	D2S293-D2S121
	I	13.3		X04602	IL-6	7q21	D7S829-D7S673
	I	<b>↑</b> 3		J03756	Growth hormone 2 (GH2)		D17S794-D17S795
	I	<b>↓</b> 3.5		D16431	Hepatoma-derived	17q2-q24	D17S794-D17S795
					growth factor (HDGF)		
	I		<b>↓4</b> ·	M58286	TNF Receptor member 1A	12p13.2	D12S99-D12S358
	II	135.5		S75256	Neutrophil	-	-
					lipocalin (HNL)		7001001 7001
	II	10.4		X99133	Neutrophil gelatinase-	9q34	D9S1821-D9S159
					associated	,	
					lipocalin (NGAL)		
	II	↑8.7		X85781	Nitric oxide		-
					synthase (NOS2)		
	II	↑5.1		X65965	Mitochondrial superoxide	6q25.3	D6S442-D6S1581
					dismutase (SOD2)		
	II	Ŷ5.5	<b>↑4.6</b>	M22430		1p35	
					group IIA	-	
				_	(PLA2G2A)		
		↑5.3		X51441	Serum amyloid A (SAA)	llp	-
	II	13.9		J03474	Serum amyloid A (SAA1)	11p15.1	D11S921-D11S1369
		↑3.7		M21119	Lysozyme	<u> -</u>	-
	II	↑3.4  -		D00408	Cytochrome P450 IIIA, polypeptide 7 (CPY3A7)	7	D7S479-D7S2545
٠.	II	↓4.2		D14662	Anti-oxidant protein 2	1 .	D1S2790-D1S2640
	II	↓4.4			Metallothionein	-	-
	II	↓8		J03910	Metallothionein-	16q13	D16S3057-D16S514
					1G (MT1G)	_	
	II.	19 €			Nitric oxide synthase 2	10	D10S1786-D10S541
	III	↑155	117.8	L08,010	Regenerating islet-derived 1 (REG1B)	2p12	D2S286-D2S169
	III	↑ <sub>7</sub> =	126 1	J05412		2p12	D2S139-D2S289
			130.4		islet-derived 1 (REG1A)		
	III	↑9.7	110.2	L15533		2p12	D2S169-D2S139
		,	4		associated	-	1
-					protein (PAP)	·	
	III	158.8	1		Zinc Finger	·	-
ŀ	III	1		HT3769 M87789	Proteins Ig 3 (IGHG3)	14q32.33	D14S65-qTEL
-					S100A9/calgranuli		D1S514-D1S2635
					n 3		
	III	10.8	T3.6		Nicotinamide N- methyltransferase (NNMT)	11q23.1	D11S1347-D11S939
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	nc .	CD .	Acc No.	Gene Names	Chromosome	Microsatellite
						Markers
V	↓4.2	↓3.4	M13755	Inteferon	1	D1S243-D1S468
				stimulated		
				protein 15-kDa		
				(ISG15)		
V		<b>↓3.4</b>	D11086	IL-2 receptor	Xq13.1	DXS983-DXS995
	<u> </u>	<u> </u>		chain (IL2RG)		
v	<b>↓</b> 3	<b>↓</b> 6	M84526	Complement factor	- •	pTEL-D19S413
	ļ	<u> </u>		D (DF) .		
V	<b>↓3.9</b>		M38690	CD9 antigen	12p13	D12S99-D12S358
V	<b>1</b> 15		M28590	MHC Dg	6	
VI	120 4	140 0	M97925	Defensin 5	8pter-p21	D8S552-D8S549
	120.4	140.0		(DEFAS)		
VI	16.8	↑7.7	U33317	Defensin 6	8pter-p21	D8S277-D8S550
	10.0	, , ,		(DEFA6)	-	-
VII	116.2	1	L23808	MMP-12	11q22.2-	D11S1339-
	1. 20.2			(Macrophage		D11S1343
				elastase)	_	
VII	16.4		J05070	MMP-9 (Gelatinase	20q11.2-	D20S119-D20S197
				B)	q13.1	
VII	114.7		X54925	MMP-1		D11S1339-
				(Interstitial		D11S1343
				collagenase)		
VII	14.2		X05232	MMP-3	11q22.3	D11S1339-
				(Stromelysin 1)		D11S1343
VII	13.3	↑3.8	L10343	Elastase specific	20q12-q13	D20S119-D20S197
	İ			inhibitor		
	<u> </u>			(Elafin)		
VII	111	↑3.1	Z74616	COL1A2	2q37	D2S2158-D2S125
VII	↑7.3		X52022	COL6A3	2q37	D2S2158-D2S125
VII	16.9	↑3.6	M55998	COL1A1	17q21.3-	D17S791-D17S794
		, , , , ,			q22 ·	
VII	14.8		X06700	COL3A1	2q31 .	D2S2257-D2S115
	↑4.7		X15882	COL6A2	21q22.3	-
	13.9		X05610	·	1 -	D13S285-qTEL
			<u> </u>	1		
ATT.	↑3.7		HG2157- HT2227	Mucin 4 (MUC4)	3q29	_
7777	142 -			Trefoil factor 1	21q22.3	D21S1259-qTEL
1 477	13.1		X52003	(TFF1)	21424.3	D4191432-d15D
VII		14 6	M22406	Intestinal mucin	-	
			M22406			DEC436 DEC450
VII	<b>16.4</b>		J03040	Osteonectin	1 +	D5S436-D5S470
7777	<b>A</b> .	<b>本</b> -	V1.7040	(SPARC)	q32	D10S210-D10S537
VII	<b>1</b> 4	↑3.2	X17042	Proteoglycan 1	10q22.1	DIO25I0-DIO223 \
7777	1		D11400	(PRG1)	17712	D17S804-D17S799
VII	13.9		D11428	Peripheral myelin	p11.2	T 12004-DT 1213
				<u> </u>	P11.2	
1777	11.		  X02761	(PMP22) Fibronectin 1	2q34	D2S137-D2S164
VII	↑3.8		12/01		~473	223131-223104
17T T	! !^^ ~		M77349	(FN1) Transforming	5q31	D5S393-D5S500
A T T	↑3.7		p:111343	growth factor	~~~	00000-00000
	ĺ					
				beta-induced (TGF		•
7777	<b>个</b> 。		D12666	Osteoblast	13	D13S267-D13S1253
A T T	↑3.2		D13666	1	د ـ	CC719CTA-1979T727
				specific factor 2		
7777	  个っ -		MICOOL	(OSF-2) von Willebrand	12p13.3	D12S99-D12S358
1 4 7 7	13.1		M10321	AOU MITTEDIANG		77777-67770

		ūC .	CD .	Acc No.	Gene Names	Chromosome	Microsatellite Markers
					factor		
	VII	13		L09190	Trichohyalin (THH)	1q21-q23	D1S439-D1S459
30	VII		,,	D88422	Cystatin A (CSTA)	3q21	-
	VII		<b>↑4.7</b>	X58199	Adducin 2 (ADD2)	2p13-p14	-
	VII		↑3.7	M86933	Amelogenin (AMELY)	Yp11.2	-
	VII		↓3.2	D45370	Adipose specific collagen-like 2 (APM2)	10	D10S1786-D10S541
	VII		↓3.8	X73501	Cytokeratin 20	-	-
35	VII	<b>↓</b> 4		U60061	Zygin 2	2	D2S367- D2S2230;D2S177- D2S119
	VII		<b>↓</b> 3	AF006087	Actin-related complex	3 .	D3S3591-D3S1283
	VII		<b>↓</b> 6	D87460	Paralemmin	19p13.3	pTEL-D19S413
	VIII	↑50.5		D28416 ·	Esterase D (ESD)	q14.2	D13S328-D13S168
		↑4.7	_	M15656	Aldolase B	q22.2	D15S202-D15S157
40	VIII		1.0.5	J04040	Glucagon (GCG)		D2S156-D2S376
	VIII		↓4.4	L31801	Monocarboxylate transporter 1 (MCT1)	1p13.2- p12	D1S418-D1S514
	VIII	<b>↓</b> 3		D10523	Oxoglutarate dehydrogenase (OGDH)	7p14-p13	D7S521-D7S478
	VIII	↓4		M12963	Alcohol dehydrogenase la (ADH1)	4q21-q23	-
		↓4.5		Y00339	Carbonic anhydrase II (CA2)		D8S275-D8S273
45	VIII	↓4.9	↓3.1	L10955	Carbonic anhydrase IV (CA4)	17q23	- 
٠.		<b>↓12.7</b>	<b>↓</b> 3.1	L05144	Phophoenolpyruvat e carboxykinase 1, soluble (PCK1)	20q13.31	D20S183-D20S173
7	VIII	13		U07158	Syntaxin 4A (STX4A)	-	-
·	VIII		13	L27706	Chaperonin subunit 6A (CCT6A)		D7S530-D7S509
	VIII	<b>↓</b> 7	↓3.1	J04093	UDP-glycosyl- transferase 1 (UGT1)	2.	D2S2158-D2S125
50	VIII	↓3.2		U20499	Sulfotransferase family 1A (SULT1A3)	16p11.2	-
	VIII	<b>↓</b> 3		M15182	-glucuronidase (GUSB)	7q21.11.	- ·
	VIII	↓4		U08854	UDP glucuronosyltrans ferase precursor (UGT2B15)	4g13	D4S1619-D4S392

	nc .	CD .	Acc No.	Gene Names	Chromosome	Microsatellite Markers
VIII	15	<del> </del>	D87292	Thiosulfate	22	D22S277-D22S283
	1			sulfurtransferase		
			İ	(TST)		
VIII	113	↓4	M22324	Aminopeptidase	15925-926	D15S202-D15S157
	1 - 2	1		N/CD13 (ANPEP)		2133432 2135137
VIII	112	↓7	M22960	Protective	20q13.1	D20S119-D20S197
	1 1 2	* /		protein for b-	20420.2	D20011) D2001)
				galactosidase		
				(PPGB)		
VTTT	13.4	<del>                                     </del>	X90908	Fatty acid	5q23-q35	
	13.4	.		binding protein 6		
				(FABP6)		
VIII	<del> </del>	↑4.1	J02874	Fatty acid	8q21 ·	  -
****		14.1	002874	binding protein 4		-
				(FABP4)		,
VIII	110	<u> </u>	M10050	Fatty acid	11pl5.5	D11C1710 D11C0
^ <del></del>	V3		MIT0020		11013.3	D11S1318-D11S90
				binding protein 1		
******	<u> </u>	<del> </del>	1.04574	(FABP1)		
VIII	₩3		L24774	Mitochondrial d3,	1-	
	1	<del> </del>	D16001	d2-CoA-isomerase	17.0	7100111
VIII	↓4		D16294	Mitochondrial 3-	18	D18S1118-D18S47
			Ì	oxoacyl-CoA		
	ļ			thiolase (ACAA2)	,	<u>:</u>
VIII	<b>↓</b> 4		M77144	3 b-	1p13.1	D1S418-D1S514.
		1		hydroxysteroid		
				dehydrogenase		
				(HSD3B2))		
VIII	<b>↓</b> 5	ļ	D10511	Mitochondrial	<u> </u> -	-
				acetoacetyl-CoA		
			•	thiolase		
VIII	<b>↓</b> 7	ĺ	Z80345	Acyl-Coenzyme A		D12S366-D12S340
				dehydrogenase	qter	
			<u> </u>	(ACADS)	1	
VIII)	<b>↓</b> 7		L11708	17 b-	16q24.1-	D16S515-D16S422
		1		hydroxysteroid	q24.2	
ĺ				dehydrogenase II		
		ļ		(HSD17B2)	·	-# •
VIII	<b>↓</b> 7		U26726	11 b-	16 <b>q</b> 22	D16S3031-
				hydroxysteroid		D16S3139
			1	dehydrogenase II		
	٠	į	-	(HSD11B2)		
VIII	↓3.5	<u> </u>	X93036	MAT8 protein	19	D19S425-D19S418
	$\downarrow_{12.2}$	14	M97496	Guanylate cyclase	1	D1S2843-D1S417
	Ψ12.2	**	1,7,4,0	activator 1B	VP21.1	
				(UCA1B)		
/III		<b>1</b>	D17400		10q22	D10S210-D10S537
		14.2	21,400	tetrahydropterin	10422	DI095I0-DI0993/
				synthase (PCBD)		
/III		Λ <u> </u>	D21262	KIAA0035	 	
			<u> </u>			-
/III		<b>↑3.1</b>	AB002365	KIAA0367	-	-
/III		↓4.5	M11119	Endogenous	-	_
1				retrovirus		
1			-	envelope region		•
7777	3.1		M19961		2cen-gl3	D2S113-D2S176
/	<b>  </b>		1			
, 111			1	laytochrome a 1	!	
,111				cytochrome c oxidase Vb		